

REMARKS

Claims 38-40 and 50-55 are pending in the application. Claims 37-40 and 50-58 have been examined on the merits. Support for “expression of the polypeptide” in claim 39 can be found at page 12 in the specification. Support for amended claim 50 can be found in claim 44 as originally presented. Accordingly, no new matter has been inserted into the application. Accordingly, entry of the amendments to claims is respectfully requested.

Priority

In Paragraph No. 3 in the Office Action, the Examiner states that a reference to the prior application must be inserted as the first sentence of the specification. The first sentence in the specification has been amended to insert the reference to the prior application. Accordingly, it is believed that the cited requirement for the reference under 37 CFR 1.78(a) has been met.

Claim Objections

In Paragraph No. 4 in the Office Action, claims 37-40 and 50-58 have been objected to because of the following informalities:

The Examiner suggests replacing “a” after “wherein” and before “gene” with --an endogenous--in claims 37-39. Claims 38-39 have been amended as suggested by the Examiner.

The Examiner suggests inserting -- wherein said rice plant comprises a T-DNA disrupted SEQ ID NO:29-- at the end and replacing “modified” with --transformed—in claim 40. Claim 40 has been amended as suggested by the Examiner.

Claims 50-54 have been objected to for depending from a non-elected claim. Claims 50-54 have been amended to overcome this objection.

The Examiner suggests replacing “an” after “comprising” and before “amino acid” with --the-- in claims 50 and 51. Claims 50-51 have been amended as suggested by the Examiner.

The Examiner suggests replacing “a” after “comprises” and before “nucleotide sequence” with --the-- in claim 52. Claim 52 has been amended as suggested by the Examiner.

It is believed that the objections have been overcome.

Rejection Under 35 U.S.C. §101

In Paragraph No. 5 in the Office Action, claims 37-39 have been rejected under 35 U.S.C. §101 because the Examiner believes that the claimed invention is directed to non-statutory subject matter. Applicants traverse this rejection. Reconsideration and withdrawal thereof are respectfully requested.

Claims 37-39 have been amended to replace the word “modified” with --transformed-- and to insert the phrase --, has been disrupted by T-DNA insert--, which should address the Examiner’s concerns.

Rejection Under 35 U.S.C. §112, Second Paragraph

In Paragraph No. 6 in the Office Action, claims 37-39 have been rejected under 35 U.S.C. §112, second paragraph, as being indefinite in its recitation of “disrupted.” Applicants traverse this rejection. Reconsideration and withdrawal thereof are respectfully requested.

Applicants submit that the word “disrupted” is not confusing because “disrupted” is a commonly used term among those skilled in the art. Disruption of a gene can be carried out using conventional methods that are well known in the art. However, in order to expedite prosecution of the instant application, claims 38-39 have been amended to indicate that the

target gene has been disrupted by T-DNA insertion into the gene. It is believed that this rejection has been overcome.

Rejection Under 35 U.S.C. §112, First Paragraph

In Paragraph No. 7 in the Office Action, claims 37-40 and 50-58 have been rejected under 35 U.S.C. §112, first paragraph, for allegedly lacking enablement in the specification. Claims 55-58 have also been rejected under 35 U.S.C. §112, first paragraph, as based on a disclosure which is not enabling. Applicants traverse this rejection. Reconsideration and withdrawal thereof are respectfully requested.

In particular, the Examiner states that while the specification is enabling for a genetically transformed rice plant comprising disruption of a nucleotide sequence encoding SEQ ID NO:63 due to the insertion of a T-DNA sequence in the nucleotide sequence, or a transgenic plant comprising transformation of the plant with a nucleotide sequence encoding a polypeptide sequence of SEQ ID NO:63, allegedly does not reasonably provide enablement for a) a genetically transformed rice plant comprising disruption of any gene encoding any ammonium transporter by any method, b) a genetically transformed rice plant comprising disruption of a nucleotide sequence (SEQ ID NO:29) encoding SEQ ID NO:63 by a method other than T-DNA insertion of said nucleotide sequence, and c) a transgenic plant comprising transformation with a nucleotide sequence encoding a polypeptide which has less than 100% sequence identity with SEQ ID NO:63. Applicants respectfully disagree.

However, in order to expedite prosecution of the present application, claims 38-40 and 50-58 have been amended to use of the polypeptide of SEQ ID NO:63 as well as nucleic acid encoding the polypeptide. Further, the transgenic plants have been amended to the use of T-

DNA as the disrupting element. It is believed that these amendments address the Examiner's concerns.

In Paragraph No. 8 in the Office Action, claim 40 has been rejected under 35 U.S.C. §112, first paragraph, for allegedly failing to comply with the enablement requirement. Applicants traverse this rejection. Reconsideration and withdrawal thereof are respectfully requested.

In response, Applicants state for the record that a deposit of the transformed rice plant 1c-109-35 will be made sometime during the pendency of the instant application under 37 C.F.R. 1.804.

Rejection Under 35 USC § 102(b) over Allen (Allen et al., U.S. Patent Publication No. 2002/0142390 A1, Filed December 28, 2001, Published October 3, 2002)

In Paragraph No. 10 in the Office Action, claims 55-57 have been rejected under 35 U.S.C. §102(a)/102(e) as being anticipated by Allen. Applicants traverse this rejection. Reconsideration and withdrawal thereof are respectfully requested.

Allen discloses a nucleic acid construct that is 90% similar to the polypeptide of SEQ ID NO:63 of the presently claimed invention. However, since Allen fails to disclose or suggest the polypeptide of SEQ ID NO:63, Allen fails to anticipate the presently claimed invention.

Rejection Under 35 USC § 103(a) over Buell (Buell et al., EMPL/GenBank/DBJ databases, Sequence Accession No. Q851M9, December 2001) in view of Jeon (Jeon et al., The Plant Journal, 22:561-570, 2000)

In Paragraph No. 11 in the Office Action, claims 37-40 have been rejected under 35 U.S.C. §103(a) as being obvious over Buell in view of Jeon. Applicants traverse this rejection. Reconsideration and withdrawal thereof are respectfully requested.

Buell simply discloses a rice sequence obtained from a database. Buell further indicates that the sequence is a putative ammonium transporter.

Jeon discloses a general method of disrupting rice genes using T-DNA.

Applicants assert that the Examiner has failed to establish *prima facie* obviousness of the invention. Buell and Jeon fail to provide a disclosure, suggestion or motivation to combine these references to arrive at the presently claimed invention. Buell fails to provide any motivation to disrupt its sequence. The gene sequence is characterized by Buell as a “putative” ammonium transporter, which further casts doubt on the desirability of disrupting the expression of this gene to achieve any purpose.

Moreover, Jeon discloses a general method for gene disruption using T-DNA. While Jeon may provide a tool for gene disruption, Jeon fails to provide any motivation or suggestion to disrupt the expression of this particularly claimed gene sequence. In particular, since there is nothing in either the Buell or Jeon disclosure of the desirability of disrupting the particular gene sequence disclosed in Buell, the general gene mutation technique disclosed in Jeon fails to be applicable to the presently claimed invention. Accordingly, Buell and Jeon fail to be combinable with each other to arrive at the presently claimed invention. It is believed that the presently claimed invention is not obvious over the cited references.

Rejection Under 35 USC § 103(a) over Buell in view of Valvekens (Valvekens et al., PNAS, 85:5536-5540, 1998) and Howitt (Howitt et al., Biochimica et Biophysica Acta, 1465:152-170, 2000)

In Paragraph No. 12 in the Office Action, claims 50-58 have been rejected under 35 U.S.C. §103(a) as being obvious over Buell in view of Valvekens and Howitt. Applicants traverse this rejection. Reconsideration and withdrawal thereof are respectfully requested.

Buell is discussed above.

Valvekens discloses *Agrobacterium*-mediated transformation of *Arabidopsis thaliana*.

Howitt discloses that ammonium is a principal source of nitrogen in plants.

Applicants submit that the Examiner has failed to establish *prima facie* obviousness of the presently claimed invention over Buell in view of Valvekens and Howitt. Applicants note that Valvekens is a general reference on transforming *Arabidopsis thaliana* using *Agrobacterium*, and Howitt is a review article that discloses various ammonium transporters in plants.

Neither Howitt nor Valvekens discloses or suggests the use or targeting of the instantly claimed gene sequence. In order to remedy the deficiencies in these references, Buell is cited for the disclosure of the naked sequence of rice ammonium transporter. However, Buell merely indicates that its disclosed gene sequence is a “putative” ammonium transporter. There is no motivation found in any of these three references to use the sequence that is disclosed in Buell to effect any purpose. It appears that the Examiner has used hindsight reconstruction to cobble together the Buell reference with a general plant transformation review reference with a general article on plant ammonium transporters to reconstruct each of the elements of the claimed invention. However, there is no suggestion found in any of these references to transform a plant using any of the genes or gene complements recited in the claimed invention. It is believed that the presently claimed invention is not obvious over the cited references.

Conclusion

It is believed that the application is now in condition for allowance. Applicants request the Examiner to issue a notice of Allowance in due course. The Examiner is encouraged to contact the undersigned to further the prosecution of the present invention.

The Commissioner is authorized to charge JHK Law's Deposit Account No. **502486** for any fees required under 37 CFR §§ 1.16 and 1.17 and to credit any overpayment to said Deposit Account No. **502486**.

Respectfully submitted,

JHK Law

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